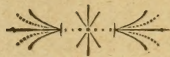
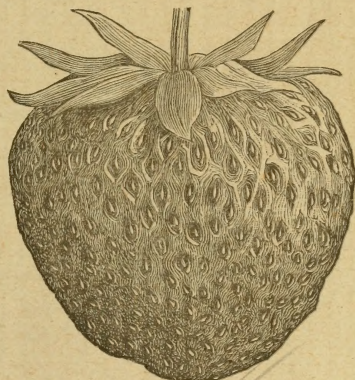


HOW TO GROW



STRAWBERRIES.



BY

GEO. R. KNAPP.

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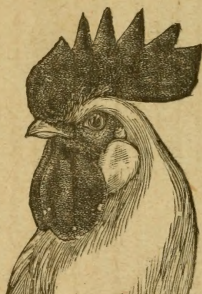
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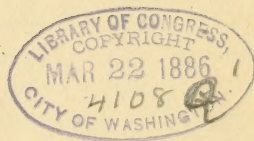
❖ HOW ❖
TO
GROW STRAWBERRIES.

A COMPLETE AND PRACTICAL TREATISE DESIGNED
AS A RELIABLE GUIDE TO THE SUCCESSFUL
CULTIVATION OF STRAWBERRIES.

BY
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PREFACE.

In preparing this little work I was actuated by the desire to place before the beginner in strawberry culture, plain and practical directions for the work, believing that a few pages so written would be of greater value and far more appreciated, than a larger work which might be composed mainly of theories rather than well-proven facts, or, than works which sought to cover the whole subject of small-fruit culture in a few pages, each portion of which would, of necessity, be brief and incomplete. I have endeavored to make the following pages interesting, instructive and a *practical help* to all who, in the cultivation of "the most delicious of all fruits," hope to find pleasure, profit or relaxation from oppressive business cares. To this end all ambiguous phrases have carefully been avoided as well as lengthy discussions, which would only tend to mislead the beginner, however interesting they might be to the horticulturist. The most approved methods of cultivation and management have been followed in these pages, all of which have been thoroughly tested by active workers in the field. Special care has been taken to make the list of varieties and descriptions accurate and complete, and it will be found of great advantage to the planter in assisting him to a proper selection of varieties.

To the writings of Prof's. Saunders and Forbes I am indebted for thoughts and suggestions on Insects and Remedies.

Entirely practical, the work is placed before the public solely on its merits.

THE AUTHOR.

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HOW TO GROW STRAWBERRIES.

GENERAL REMARKS.

As before stated, I shall carefully avoid anything which there is good reason to believe will mislead the reader in the slightest degree. While I realize that botanical information and technical points in horticulture are of interest and value to the student, at the same time, in my opinion, these matters should be touched upon but lightly, giving full weight to subjects which are designed for the instruction of beginners in the work. Therefore, while touching on the points regarding origin, structure, species and other matters not directly connected with information of practical interest to the grower, I shall do so briefly, referring the reader who may desire more thorough information on the subjects named, to works of greater magnitude than this.

SPECIES.

In classing the Strawberry as species we shall speak of those most familiar to the grower; others, which are sometimes sub-divided as species, are in the main purely local kinds, or have a distinctive character which while it may give it a place of its own does not make it of any particular value to the grower.

Fragaria vesca, color, red, white and yellow; wood strawberry; nativity: Europe and America; also Alpine.

F. colinna, Green strawberry; improperly classed as a species.

F. Indica, fruit not edible—India.

F. elator, Hautbois, native of Germany; color red; fruit edible but of peculiar flavor.

F. Virginiana, the cultivated species of the United States.

F. grandiflora, red and white, native of South America.

The above list comprises all species with which the general planter will be liable to come in contact; and in fact we may limit his acquaintance to *Fragaria Virginiana*, our own cultivated species.

STRUCTURE AND CHARACTER.

To the ordinary observer a strawberry plant is simply a strawberry plant, nothing more nor less; they are often puzzled by seeing specialists in strawberry culture go over a plot and, by an apparently cursory glance, point out the many different varieties, giving them the names by which they are known among horticulturists; the observer may closely watch, but can perceive no distinguishing marks by which they could be properly separated into names. Of course a difference does exist but can only be learned by constant study of, and association with, the plants. The general characters of the strawberry are, calyx flat or reflexed, deeply five-cleft. Petals ordinarily five (we have seen seven), white, erect and spreading. Stamens generally about twenty. Pistils numerous, adhering at the base to the small, seed-like fruits. Increased by seeds, divisions of the roots, and runners; plants perennial. Leaves obovate, coarsely serrate and evergreen. Roots fibrous and perennial. We find some plants with long, fibrous roots; others short and fleshy. There also exists considerable difference in the foliage of many varieties of plants; indeed, this distinction is so marked that cultivators should experience but little difficulty in determining it; for example: one variety will have light green leaves, often with a yellowish cast, while the leaves of other kinds are of a dark green color and glossy, having the appearance of having been varnished. While as we have seen the leaves of the strawberry are serrate (cut leaf), this characteristic is more strongly marked in some varieties than in others.

PROPAGATION FROM RUNNERS.

We now come to the most common method by which the strawberry is increased, viz.: from runners; we say the most common method of propagation, and it is so only because the varieties grown in our country can be increased by this method better, easier, and cheaper than by any other. It will be understood that the *increase* of a variety is referred to, not the production of a new sort.

In my opinion there is but little choice between the plants produced by a runner; if any, those nearest the parent plant, or in other words, those first formed from the runner, are the strongest; still, if allowed to remain

a sufficient length of time, the other plants formed will answer the purpose equally as well.

To secure the best results—strong plants and in quantity, the soil should be kept mellow by frequent stirrings; care is required after a new plant has set, not to disturb it while working in the bed.

The majority of growers do not realize what vast numbers of new plants may be grown from runners, and are apt to allow too many to set, more than they have use for. In the nursery plants are set for the express purpose of securing as many new plants as possible, without regard to the fruit; the fruit-grower, however, should bear in mind that with him the fruit is the great desideratum; if the fruiting plants are allowed to waste their vitality in the production of plants, the fruit crop will be diminished in a corresponding degree.

If plants are desired, either for sale in small quantities or for transplanting, the best plan is to allow but a small portion to throw out runners, keeping the runners on the fruiting patch cut, as directed further on. If but a few new plants are needed, pinch off the runners just beyond the first plant which has set, and when this plant becomes well established, the runner which connects it with the parent plant should be severed.

PROPAGATION BY ROOT DIVISIONS.

As this method is seldom practiced except with such species as do not reproduce readily from runners, we will say but little concerning it.

The stools are removed from the ground early in the spring and divided, leaving one crown to the plant; each plant so divided is then reset. Fruit-growers in general have but little occasion to propagate in this manner.

PROPAGATION FROM SEED.

While we regard raising seedlings as decidedly out of the province of the fruit-grower, so natural is the desire to originate a new fruit which may prove of value, we will in brief explain the *modus operandi*. We may be pardoned if we digress for a moment to offer a word of caution to the novice in raising seedlings. It is assuredly no easy task to produce new varieties which will prove valuable; we know men of means and acknowledged practical experience in fruit-culture, who have spent years in raising seedlings and have failed to produce even one which could be placed in competition with those already in the hands of the grower. One man in particular, in one year raised several hundred seedlings and only one eventually proved of value, and that over but a small portion of the coun-

try. The originator of the Jersey Queen strawberry, who has probably raised as many if not more seedlings than any other man in America, toiled for years, almost without success, before bringing out a variety which he considered of sufficient worth to warrant him in introducing. When we consider that he possessed, in an unusual degree, experience and knowledge in his chosen work, the novice may well ponder over the chances of success and hesitate before endeavoring to "astonish the world" with some new variety of his own producing.

Raising seedlings and hybridizing have peculiar charms, from which it is hard to break, even though repeated failures are the only results of our efforts.

The fruit should be gathered when perfectly ripe, and dried; or, the ripe fruit may be crushed in water and the seeds washed out. Other propagators follow this method, which is perhaps the best one. The best berries of the choicest varieties are gathered and mixed with dry sand (white sand being preferred), the whole mass being crushed until the seeds and pulp are thoroughly incorporated with the sand. This sand is sowed in pots or boxes and placed in a shady but rather warm situation. The soil should be light and cover the seed about one-fourth of an inch; the soil must be kept moist. The young plant will appear in about a month and after it has grown three or four leaves it should be transplanted to the open ground. The soil for the bed in the open air must be made rich and kept free from weeds. It is advisable to shade the young, transplanted plant from the heat of the sun for a few days, until it becomes firmly established, after which treat as with other kinds. The second or third season will determine its value. One great mistake made by many originators, is the introduction of their new seedlings before they have been thoroughly tested; while one of the new productions will often show many points of excellence in its native soil, when scattered throughout the country, it may prove an utter failure. True, it will be short-lived, but until originators cease to send out new varieties promiscuously, without having been tested by other propagators throughout the land, just so long the people are destined to be drawn into purchasing plants which are likely to prove of no value outside of the particular locality in which they originated.

POTTED PLANTS.

Though of comparatively recent introduction, so great has been the demand for pot-grown strawberry plants, that of itself it has grown to be a most important feature of the nursery business; being grown and set

at a time when other plants cannot be properly or successfully handled it becomes a doubly profitable industry. The value of potted plants is two-fold: by setting them the grower is enabled to secure a fair crop the first season after planting, and should circumstances prevent him from obtaining his plants at the proper season in the spring for planting layer plants he may set potted plants during the hottest days of July and August with perfect safety. When one is obliged to buy, it will not pay him to set pot-grown plants only in small quantities, when fruit is desired as quickly as possible or for home consumption only. Another advantage of potted plants is for experiment; if the planter wishes to test a new variety, by setting a few potted plants he may obtain sufficient fruit, the following season, to enable him to judge with some degree of accuracy whether it will prove worthy of extended cultivation with him.

The price of pot-grown plants is about double that of ordinary layers at the nursery; to which cost must be added that of transportation which, in long distances, is quite an item. Those who already have a bed of plants may grow potted plants from it after a little practice, at a small expense, by observing the following directions:



Fig. 1.

After the parent plant has thrown out runners, prepare a number of two-inch pots, filled with fine, light earth; with a hand trowel make a hole directly beneath the newly formed plant, sink the pot in the hole to a level with the earth, force the plant into the pot, being careful not to break it at the crown, nor to cover too deeply. In from ten days to two weeks the pot is completely filled with well-grown and healthy roots; the

runner is then separated from the parent plant, the pot taken up, and the plant removed from it, together with the ball of earth adhering to the roots, and planted. Figure 1 represents a potted plant turned out of pot. When prepared for shipment the plants are wrapped singly in paper and carefully packed.

SEXUALITY.

The family of strawberries may properly be divided into three classes or sexes, viz.: Hermaphrodite, Bi-Sexual or Perfect,—which terms are synonymous,—Pistillate or imperfect, and Staminate. As the latter is barren in all cases and rarely if ever falls into the hands of the average planter, we will not consider it, but confine ourselves to descriptions of the two former.



Fig. 2.



Fig. 3.

Varieties termed Bi-Sexual or Hermaphrodite—which beyond all question is the natural condition of the strawberry flower, the assertions of a few theorists to the contrary, notwithstanding—are those whose blossoms contain the necessary organs for fructification: i. e., pistils and stamens; such varieties will bear perfect fruit of themselves without reference to any other variety or sex. (See Fig. 2.) Pistillate or imperfect varieties (fig. 3) contain in their blossoms pistils only; being destitute of stamens, such kinds require a row of a perfect flowered variety planted every ten or twelve feet among them or every third or fourth plant in the row, to render them productive.

We believe that more trouble, failures and dissatisfaction arise among fruit-growers—particularly among small growers—from ignorance regarding the sex of strawberries than from any other one cause.

Why it is so we cannot conceive, for nurserymen as a rule, and indeed, we may safely say without an exception, among reliable dealers, are very careful to give the question of sexuality a prominent place in their catalogues, in language similar to the following: "All varieties offered are Perfect or

Hermaphrodite, except those marked (P.), which kinds require fertilization by planting perfect-flowered kinds near them." So important is this question of sex and the effect of proper fertilization, as well as the effect of the pollen on the imperfect kind, that we shall endeavor to give the subject the attention it certainly demands. The question naturally arises in the mind of the reader, "If imperfect kinds require such care in the direction named, why should they be planted?" "Why not confine ourselves entirely to the cultivation of perfect kinds-flowered?" We acknowledge that in many cases such a course might be most wise, but still, it cannot be denied that in some localities, with proper fertilization the pistillate kinds are the most profitable; indeed, in one instance which came under our observation, the planting of pistillate varieties was the only course conducive to success.

The grower had for years tried many varieties of the perfect-flowered kinds for market; it was desirable that he have a late-ripening kind; the nature of his soil was such that together with adverse climatic conditions he was limited to a few varieties and cultivated these only with partial success. On the introduction of the *Manchester* in 1881-82 he planted it with *Sharpless* as a fertilizer, and since that time has made them his sole variety for medium to late kinds. Here then is one reason why we should not discard the pistillate varieties; others equally as convincing might be mentioned. The objection may be urged that the case we refer to is an isolated one, and not likely to occur frequently enough to warrant giving it particular attention.

We acknowledge that there are few locations where obstacles apparently so insurmountable are found, but certainly if the *Manchester*, *Crescent* or some other pistillate variety will bring the cultivator two, three or four cents per basket more than the perfect-flowered kinds, is it not sufficiently conclusive? Certainly the little care required in this respect should be given rather than lose the benefit of some of the finest varieties.

Theory after theory and argument upon argument have been advanced, fought against and occupied the attention, to a greater or less degree, of horticulturists—and growers as well,—for years, in fact ever since the introduction of our first valuable pistillate variety, *Hovey's Seedling*, in 1834.

During the summer of 1884 a considerable amount of talk was made on the subject of the influence of the pollen of the perfect-flowered variety on that of the pistillate which it fertilized; as usual when mooted points are raised many are apt to go to extremes in the discussions which follow.

Authorities differ greatly on the subject. Many writers and men of knowledge, supposed to have given the subject study, claim that through the pollen of the perfect varieties, are transmitted to the fruit of the pistillate kinds many of their own (the perfect) characteristics: flavor, form, color and texture; for example, these writers urge the advisability of using as a fertilizer of a pistillate kind, a variety which has in a strong degree those characteristics he most desires to secure in a fruit: if firmness in a berry be the desired qualification, fertilize the pistillate variety with *Wilson* or any other perfect kind, blossoming at about the same time as the pistillate, whose fruit is firm; if size is wished for, *Sharpless* or any large variety should be used for the purpose of fructification. Others, and men whose opinions should bear weight, claim that no such transmission can possibly take place. Still another class claim that the effect of the pollen of the perfect-flowered variety on that of the imperfect, causes the latter to lose its identity completely; this assertion, however, is too broad, and we doubt its truth.

As the question has an important bearing and a practical one as well, on strawberry culture, we have followed it to some length. I have noticed the effect of the pollen, as first mentioned, in a general way; that is, have seen it proven in field culture, and am confident that the influence noted *does* appear and should be considered by planters.

At the meeting of the American Pomological Society held in Grand Rapids, Mich., the past summer, the subject was brought up for discussion. Prof. Lazenby of the Ohio Experimental Station gave the results of his experiments in this direction. One test had decided beyond all question that the effect of the pollen was plainly perceptible in the fruit of the plant impregnated; still, the next experiment, carried on in the same manner and with the same varieties, failed utterly to show any effect. Horticulturist Goff, of the N. Y. State Experimental Station, reported the results of his numerous tests, to the *Rural New-Yorker*, and in his opinion no change could possibly take place.

At this writing, however, it is a generally accepted fact among unbiased horticulturists that the pollen of the perfect variety does change the characteristics of the pistillate kind, although the change is not absolute nor invariable. It may or may not be noticeable for several successive seasons.

But, until these experiments are made as they should be, by placing pistillate and perfect-flowered varieties where the pollen may be controlled during the time of transmission, under a glass bell or other protector, where the pollen from other plants in the vicinity cannot be carried by

bees or the action of the wind, just so long we will remain in the dark on the subject. In my opinion when this plan is adopted, the now theory will become an established fact. Indeed, the opinion of Mr. A. S. Fuller, a practical, thorough and conscientious worker in the field of horticulture, and an undisputed authority on matters pertaining to the profession, is sufficient evidence that there is more than theory at work.

Over twenty years since, Mr. Fuller wrote as follows:

“Without presuming to advance a theory on the subject, I would suggest whether it is not possible that variations may have been made on growing plants by the influence of the pollen from different varieties. It is generally supposed that no effect is produced except on the seeds, but as it is most conclusively proved in animal physiology that the female retains the effect of its first impregnation in the system for years, may not the same be true of plants, and the admixture or deterioration of one, and the improvement of another kind growing in close proximity, be caused by the absorption of qualities each from the other? If the effect of the pollen reaches no further than the seeds, why is not the fruit (receptacle) produced without them? But we find that whenever the pistils are not fertilized the receptacle also fails, or if a portion only is supplied with pollen then the receptacle is deformed in proportion. Remove one, two, or more pistils before they are fertilized, and the berry, just at this point, fails to enlarge or come to maturity. No seeds, no berry is the rule. If the strawberry seed was large enough to be readily examined, we should probably see a difference in color and form just as we notice in mixed varieties of corn.

In the latter we can see that the influence of cross fertilization extends further than the seed, because its receptacle (cob) is often changed beneath the kernel to a color similar to that of the variety which produced the pollen. It is often asserted that the Hovey is better when fertilized with one kind than with another, and may not this be true further than that of being fully supplied with pollen?”

It seems to me that if so thorough a man, as Mr. Fuller is acknowledged to be, noticed these phenomena so long ago, he was fully satisfied in his own mind that the difference *did* appear or he would not have expressed himself so decidedly on the subject. We feel convinced that this question will be ere long decided in favor of the argument advanced by Mr. Fuller and others. In the fertilization of the pistillate variety it is necessary for success, to select for the fertilizer, a variety which produces an abundance of pollen and also one that blossoms at the same time as the pistillate.

SELECTION OF VARIETIES.

Perhaps one of the greatest difficulties experienced by beginners, is the proper selection of varieties; yet mistakes made in this direction are often times fatal. While it is perhaps needless to speak of the nature of the many different mistakes made, mention of the principal ones may not be amiss. A common error is to select for planting, varieties which are highly extolled by some nurseryman, without the necessary precaution being taken in regard to its adaptability to the planter's own soil, location



Fig. 4.

and climate; a mistake of this nature beggared one man and many others known to us have either become seriously embarrassed financially or gave up fruit-raising in disgust. By no means do we desire to convey the impression that we wish to discourage the planting of new kinds; on the contrary, we strongly urge that every planter who can devote the time, money and labor required, have an experimental bed where he may set a few plants of each new variety and test it thoroughly, that he may decide whether it will prove of practical benefit to him if set in large quantities. Another point to be taken into consideration is extreme care in securing

plants true to name. It is surprising how many people there are who, for the purpose of saving a few dollars in the purchase price of plants, will sacrifice hundreds as is the usual result of their short sightedness; for it must not be forgotten that it costs considerable to grow and pack plants properly. Of this fact be assured; that if any nurseryman or dealer offers plants for about one-half the price asked by reliable men, there is something wrong and these men and their goods should be severely let alone. Good plants, true to name and properly packed may be obtained at a fair price, and with proper care will be sure to succeed.

So well arranged is our postal system that plants in small quantities may be safely sent by mail thousands of miles. If properly packed, plants may be shipped by freight or express long distances and arrive at their destination apparently as fresh as when first taken from the ground. Strawberry plants are perhaps more difficult than any others to transport safely and if not properly packed, will die *en route*; plants received from reliable men are young ones only, with good roots well straightened; dried leaves and runners removed, and tied in bunches of twenty-five, fifty or one hundred, (see Fig. 4, on preceding page,) and labeled. Straw, dead leaves, hay or similar material with plenty of damp moss is used for packing, and all carefully packed in a strong, light and well ventilated box. Plants packed as described will be received by the purchaser in splendid condition.

It is a fact to be regretted, that there are many men in the nursery trade throughout the country, who do a business founded solely on a "cheat" basis and to secure orders place their prices far below others, in many cases below the cost of actual production of good plants; these men fill their orders with refuse stock and literally throw the plants into boxes, instead of packing properly; but, on the other hand, there are nurserymen—and plenty of them, who, by fair dealing, have made reputations which they wish to retain and realize that they can do so only by keeping up their grade of plants to the standard. It is a wise plan, in the selection of varieties, to observe what kinds your progressive neighbor best succeeds with, and if your soil be similar, make such varieties your main stay, adding others as experiment proves them worthy.

SOIL AND ITS PREPARATION.

The soil best adapted to strawberries is a deep, rich, sandy loam; still a clay or sandy soil may be made suitable at a small expense. In brief, any soil on which a good crop of corn can be raised, will *do* for strawberries *provided it is properly prepared*; strawberries are easy of culture and

by nature seem to thrive so well on any soil, that the question of soils should never for a moment be considered an impediment to the culture of this fruit. Of course it will be understood we are speaking of varieties in general; some kinds seem to require a certain kind of soil and culture and will not thrive without them, while others, equally as good in every important feature, will succeed anywhere. The writer once planted one-eighth of an acre with Crescent strawberries, fertilized with Sharpless; the soil was a mixture of clay, coal ashes, mud, old tin cans and rubbish in general; in fact, that particular spot being low had been used for a "catch all" for years. As an experiment we simply spaded it over once and then only to the depth of about four inches, and set the plants. So remarkably vigorous was the variety Crescent that we did not lose a single plant while every Sharpless died the first season.

To test the capabilities of the variety still further, we secured a number of tin pans, filled them with the best soil procurable, and set the fertilizing plant Sharpless in them, being careful that the Crescent did not receive any of the good soil. The following season we had a full crop of the finest Crescents we ever saw. Thus we see what one variety will accomplish under adverse circumstances.

We simply mention this to show that unusually rich soil is not an absolute requirement for the strawberry; still the fact must not be overlooked that the better and richer the soil and the better the treatment a plant receives, just so much larger and finer will be the crop. To treat the Jersey Queen and some others in the manner we adopted with the Crescent would have been certain death to the plant.

The soil should be deeply plowed and cross-plowed, or if in a garden, spaded both ways; if possible, by all means use a sub-soil plow to the depth of at least a foot. In brief every care should be taken to make the soil friable and deep; thorough work in this respect is the price of success. Another mistake frequently made, is devoting too much land to one fruit or one variety; it should be remembered that ten acres in plants require considerable attention and those who have means to but properly care for five acres should set out no more: one acre properly cared for is of more value to the owner than ten which receive only half care. Setting more plants than can be properly cared for means failure with all, and should be studiously avoided.

SITUATION.

Strawberries require an open, sunny situation, with a southern exposure for early ripening kinds and a northern one for the late varieties. The shade of trees, buildings and fences should at all times be avoided.

We consider land which is gently sloping preferable to side hills or a level.

This question of situation is an important one and demands attention on the part of the grower; we wish again to caution the beginner against the shade or proximity of trees. We have known cultivators to plant strawberries between rows of young peach trees simply because the ground was rich; as a consequence the growth of both tree and plant was considerably retarded, to say nothing of the loss suffered, by both, from lack of cultivation with a harrow or other tool. To save the labor and expense of preparing a plot of ground for his strawberries the owner must needs partially destroy both trees and plants. Mistaken ideas of economy which should be guarded against.

SEASONS FOR PLANTING.

The question of fall or spring planting still continues to bring forth many arguments in favor of each; indeed, the dispute has been waged until in borders on the ridiculous; as we consider it a question of minor importance we will only say that the planter must decide the question, for himself, by personal experiment of each season in his own locality; we have planted with equal success at both seasons. April, May and early June, in the spring—July and August for pot-grown plants, and September, October and November in the fall, are the best months for planting; the months named of course vary somewhat in different localities. It is always best to plant as early as possible after the soil is in fit condition to work in the spring; in the fall, however, we deem it advisable when the season will permit, to delay planting as long as possible, so that better roots and stronger plants may be obtained.

PREPARATION OF PLANTS.

When the plants are received from the nursery, they should be taken from the package and careful attention given them at once; the majority of our nurserymen are careful to remove all dead leaves and runners from the plants before packing and shipping; however, as this is not always done, the planter should take pains to do it before setting out the plants. Properly grown plants have an abundance of roots and in packing these are frequently bruised or broken and should be cut off before planting; in fact, the roots should be shortened whether they are bruised or not; this operation is best performed by taking a bunch of plants, just beneath the tops, in the left hand and with a sharp knife in the right hand cut off all roots which protrude from the left; this will be about one-half their length, which is sufficient. The result of this shortening process is ob-

vicious: it causes the shortened roots to throw out from the cut ends an abundance of fibrous roots which are conducive to the rapid growth of young plants; it also causes roots to be emitted more abundantly from near the crown.

It will be understood that this shortening process is necessary only to layer plants, as potted plants are set with the ball of earth in which they were grown adhering to the roots. It is advisable, especially if the plants are received in a somewhat wilted condition, "to puddle" the roots before planting; this operation is performed by mixing a quantity of soil with water, until of the consistency of mortar, and dipping the roots in this mixture, allowing them to remain a minute or two.

MANURES AND FERTILIZERS.

The strawberry plant is a gross feeder and requires manure in abundance both under field and garden culture. As illustrated some pages back with the Crescent, *strawberries can* be grown almost without effort or care, beyond that of planting; still, it always pays to give plants care, and *good* care at that, especially in regard to manures. We have always failed to understand why some growers would persist in stinting their plants in this respect, and that too, when the good results of liberal applications of fertilizers are so plainly seen on the plantations of others near them. It certainly cannot be from ignorance, for the fact is too apparent to escape unnoticed; if the cause be neglect, for the purpose of saving (?) a few dollars, it is assuredly a foolish conclusion to reach.

We strongly advocate deep plowing and subsoiling, because we desire to give the plant plenty of natural soil in which to thrive; and we also insist on the application of manures with a liberal hand to sustain this growth. The reasonable conclusion must be reached by every thinking person, that if we desire fruit in abundance and a strong, healthy growth of plants, we must fertilize to obtain these results; further, this strong growth must be sustained, and exhausted vitality, resulting from extreme fruitfulness, renewed, which can only be done by manures. The strawberry is friendly to almost any kind of manure: wood ashes, stable manures, hog manure, ground bone, night soil, hen manure and commercial fertilizers, such as guano, etc.; these latter, however, must be used sparingly and in connection with manures of home making. In towns contiguous to the ocean, marl in small quantities is used with good effect.

An excellent fertilizer is made by mixing with the barnyard manure and scrapings, wood ashes and muck in about equal proportions. The heap should be turned once during every three or four weeks. Cow ma-

nure is doubtless the best of all for the strawberry. Fertilizers should be spread over the plot designed for strawberries and plowed under; before planting, apply a top dressing of old, well-decomposed stable manure free from straw. Manure should also be placed between the rows, during the spring, and harrowed in. The more fertilizing material used the larger the berries and the greater the yield. Cultivators should remember that it is a sadly mistaken idea of economy of endeavoring to make one load of manure do the work of twenty. May not this neglect of manure be the one cause of failure with some reader? Scrapings from the hen-house are admirable as a fertilizer, but must be applied sparingly as it is very powerful; the best plan is to mix it with other older manures or apply broadcast at the rate of three bushels per acre. Some cultivators use lime in limited quantities, usually at the same rate as ashes, viz.: ten to twenty bushels per acre applied broadcast; it is generally the preparation bought in market. From a number of experiments made on a small scale we are led to consider it very injurious, particularly when it comes in direct contact with the roots of the plants. We once set twenty-five plants and in each hole placed about one ounce of lime mixed with the soil and lost every plant; another lot set at the same time on land over which lime had been sowed broadcast at the rate of twenty bushels per acre lived, but appeared sickly and of slow growth, maturing a meager crop of inferior fruit.

On another occasion we received a box of plants from a nurseryman and noticed that in some manner a few of the bunches had come in contact with lime, and though in transit but three days, the difference in appearance from the others was very noticeable. We carefully washed the plants, both roots, and leaves, before planting, but they continued feeble throughout the first season.

PLANTING.

Serious mistakes are often made in planting, many times through ignorance but more frequently by carelessness and hurry; particularly is this the case when a large number is to be set; we know when a planter has some thousands of plants to set he is anxious that it be done in the quickest possible manner, but too often loses sight of the real importance of care in the operation, and sets out a dozen in less time than he could set half that number if properly done; care in planting will certainly be well repaid by a quicker and better growth, increased and finer crop. After a little practice one can soon set plants very rapidly and yet properly. Another common and fatal error is crowding the roots in a hole much

too small for them; undoubtedly plants set in this manner will live, but they certainly cannot thrive so well as those properly set. In planting, set the plants the same depth as when growing, the leaves on a level with the surface of the soil. If the crown is covered with earth the plant soon dies. Fig. 5 shows a plant which has not been set deep enough; fig. 6, one which is set too deep; fig. 7, a plant which has been



Fig. 5.



Fig. 6.

thrust into a hole without the roots being properly spread out: plants set in either way shown have but little chance of living. Fig. 8 shows a plant properly set; the roots spread out and properly covered. If possible, choose a cloudy day for planting and if the weather



Fig. 7.

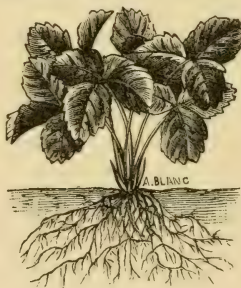


Fig. 8.

be warm, shade the plants for a few days with papers, straw or old berry boxes. In planting, a hand trowel should be used; make the hole wide and shallow, take the plant in the left hand, spread the roots out in a natural position and throw in a handful of earth around the roots, fill up the hole and press the earth firmly about the plant with the hands. Distances for planting both in Field and Garden culture, and more minute directions, will be found under the proper heading. If

plants are correctly and carefully set, success is almost assured; if carelessly done, failure is just as certain, and the planter need not be at all surprised at the result. We wish to emphatically urge attention in this respect, for we believe that improper planting is one of the principal causes of failure with many who attempt to grow strawberries.

CULTIVATION.—GENERAL REMARKS.

All plants in general, and strawberries in particular, thrive much better and give much more satisfactory results, when carefully and thoroughly cultivated. It is truly surprising how little interest some planters take in their plants after they are set; indeed, to such an extent is the negligence carried, that oftentimes plants are choked with weeds and grass, the soil becomes baked and hardened; and yet the owner really seems to be ignorant of the reason why his plants fail to give him a good crop; we might with as much reasonableness expect an animal to do good work and continue in good health without food, as to expect plants to thrive under such unwarrantable neglect; why it is that planters are guilty of this gross neglect, we do not know, unless it be that pure and unadulterated laziness is at the bottom of it. We wish to give especial stress to the subject of cultivation, knowing from experience and observation how important a matter it is. The most successful growers in the country annually spend hundreds of dollars for the purpose of keeping their plantations clear and free from weeds, and consider themselves well repaid for the outlay, by the increased size of both fruit and crop. The rows between the plants should be carefully weeded with hoe or cultivator frequently, at the same time thoroughly stirring the soil, which is of great value to the plants, supplying to a great extent the double purpose of weeding and moisture. During the months following the fruiting of the plants, and before the ground freezes, we have frequently cultivated between the rows ten or a dozen times at as many periods; and though the expense was quite an item, so beneficial did it prove, we would by no means forego the operation. When plants are desired for fruiting only, the runners may be clipped off with the hoe while weeding, and this saves considerable time. This cutting off runners is imperative if a large crop of fruit is desired; we know that there exists a great antipathy to this custom, but it must be overcome if the best results would be obtained. As before stated, these runners and the new plants from them, absorb the nourishment required by the fruiting plant, and even to a greater extent than weeds or grass. A few moments work daily in the garden and an occasional day in the field will suffice to keep the beds clean and be of great benefit.

LONGEVITY OF PLANTS.

We have frequently been asked the average life of strawberry plants and doubtless some reader may be interested in the subject. Strawberry plants with ordinary care will produce good crops for two, three and even four years, after which the beds must be renewed; with *good* culture, an abundance of fertilizers and proper management, they will do fairly well for five years or longer. Some varieties like the Cumberland, Monarch, etc., are longer lived than others, notably Wilson's, Sharpless and many of the newer kinds. Without presuming to give a decided opinion or advance any new theories, we would ask whether it is not probable that the average lease of life of the majority of the new varieties introduced within the past five or ten years, is not less than that of those old kinds we have known for twenty years? In other words, will a bed of the Jersey Queen, Sharpless, or any of the newer varieties continue to bear under good culture, as good crops or for as long a period before renewing, as the Cumberland or any of the older kinds? Are we not to some extent on the retrograde rather than progressing? We do not consider the subject of the length of life of a plant of sufficient importance to enlarge upon it, for it is certainly much easier and better to form new beds every third year, than to force the old plants to renewed vigor. Many cultivators of experience allow their beds to bear but one crop, i. e., the second season after planting; keeping the blossoms picked off the first season, allowing the plants to fruit the second season, and plowing under after fruiting. Of course this system of practice necessitates considerable labor and requires that a new bed be set yearly in order to keep a fruiting bed, but it pays well to follow it, particularly where the fruit is raised in large quantities.

GARDEN CULTURE.

In the cultivation of Strawberries for home use and in small quantities, the grower is enabled to give his plants greater attention and by unusual good care secure fruit which will astonish even himself, both from its size and quantity. The plot designed for the plants should be deeply spaded to the full depth of the tool, and if spaded the second time, work the opposite way of the patch; the enriching material should be applied before spading the bed the second time, that it may be spaded in and thoroughly incorporated with the soil; the bed should then be gone over with a hoe or hand-rake and all lumps broken, the stones and sods removed, and the soil pulverized as finely as possible. Mark out the beds four feet wide, with alleys two or two-and-one-half feet wide between

them; the beds may be of any length desired. Each bed should contain three rows of plants, 15 to 18 inches apart; and plants about the same distance apart in the rows. Set plants as directed under heading of Planting on page 19. Plant at least three varieties, early, medium and late, to secure a continuous season of fruit. The plants should be watered a little for a few days and shaded during the heat of the day. Keep the space between the rows free from weeds, and the soil loose and friable. A few applications of liquid manure just before fruiting will very materially increase the size of both fruit and crop. After the fruiting season the plants still require care and attention; the runners must be kept cut and the bed frequently weeded. If the season be unusually dry the plants must be watered occasionally. A collar of straw placed around the plants will keep the fruit clean and enable the berries to ripen much quicker and more evenly. We have experimented with many of the patent "fruit protectors" and consider the collar of straw equal to any, with the additional advantage of cheapness. The bed should be mulched and protected for winter as hereafter directed.

FIELD CULTURE.

There are many different systems followed in field culture, but we will confine ourselves to the more common ones. Hill culture, as recommended for the garden, is probably one of the best practiced in field culture, although the usual method is the matted-row system. In hill culture the beds are prepared as directed for the garden, using horses and cultivators instead of hand tools: the bed must be kept free from weeds and be thoroughly manured and cultivated. For the matted row system, plant in rows three feet apart and the plants a foot apart in the rows: the runners are allowed to grow and fill up the space between the rows. Early every spring a plow is run through the middle of the bed, which space in turn is occupied by new plants. We greatly question if this system of culture is profitable: certainly the berries must be undersized and inferior and as a consequence net a low price in the market. Far preferable is the annual system, before mentioned, of allowing the field to bear but the one crop, and then plowing it under. Under all systems of culture, manures must be applied liberally and especially so with the matted-row system, to secure a crop worth marketing. Strawberry culture for market has reached to so great an extent, that if the grower would make his calling profitable to a degree commensurate with the labor involved, his aim must be to place on the market berries of good size. The day is passed when

inferior fruit will bring a good price simply because *it is fruit*. Dealers in fruit have too large a supply to select from to give half-ripened inferior fruit even a thought.

THINNING THE FRUIT.

If very large fruit is desired for exhibiting or other purposes it can be obtained by reducing the quantity of fruit, by plucking about one-third of the fruit off when half ripened and allowing the balance to mature: however it is best to pick most of the blossoms allowing only the most perfect ones to perfect their fruit: naturally the vitality of the plant and nourishment will be absorbed by the remaining blossoms and berries. Oftentimes even in very large plantations, thinning the fruit is advisable, particularly if the fruit crop be allowed to perfect itself: though it seems probable that the forcing of the strength of the plants into a few berries is likely to weaken the plant more than if the whole crop be allowed to mature.

PICKING AND MARKETING.

The price obtained for fruit in market depends in a great measure on the manner in which it is picked, packed and shipped. Oftentimes large and beautiful fruit is packed in broken boxes and poorly made crates, which in transportation are still more broken and the fruit mashed and spilled making it almost unsalable, besides reducing the quantity very greatly. Another, and probably the most common error is made by picking the fruit carelessly and allowing the inferior and half-ripened berries to go to market: a half dozen inferior berries in a basket will reduce the price often to one-half. The fruit should be gathered at least every other day at the beginning of the season and in its height daily. It is always best to pick as early in the day as possible. The pickers should be supplied with a light tray with handle, holding four or six quart baskets: they should be instructed to pick only such berries as are perfectly ripe, at the same time they should be required to pick clean, for if fruit which is fully ripe is left on the vines long it will become soft and unfit to ship. In preparing the fruit for market make two and sometimes three grades, the first, the best, largest and cleanest: those only should be sent, the half-ripe and bruised ones never. Some shippers pick off the hulls or calyx before shipping: while the berry looks much nicer if this be done, we very much question if it be profitable especially if the fruit is long in transit.

Ship in quart baskets filled level full: pack in strong crates, securely fastened. In shipping long distances, it must be remembered that many varieties will not bear transportation well, and such kinds should either be used at home or sent to near markets.

It is unfortunate that color is considered so essential a point with buyers, unfortunate for the consumer, for many of the finest varieties grown are dark in color and hence not acceptable in the market, for bright colored berries control the price almost entirely.

MULCHING—WINTER PROTECTION.

The benefit derived from mulching cannot be over-estimated and though considerable argument has from time to time been used against it, our experience and that of the most successful growers in the country, has proved that it is beneficial far beyond any damage it may do, which if the proper material is used is mainly imaginary. Let us for a moment take but a common-sense view of the question: plainly speaking, mulch is simply applied for the purpose of food and protection: we have had the benefit of a large crop of fine and luscious fruit, in the bearing of which our plants have become exhausted and it is certainly but fair that they receive sufficient food and protection to enable them to recuperate. Straw, leaves, salt hay, spent hops, corn stalks, straw or shaving manure, are all valuable for mulching and should be applied in the fall as soon as the ground is sufficiently frozen to bear the weight of a wagon. The space between the rows as well as the plants should receive a dressing of fine manure, after which the whole bed should be covered with some of the material named above: care should be taken not to cover too deep or the plants may be smothered. Under this mulch the plants will live and come out in the spring full of strength, freshness and vitality. The coarse material should be entirely removed in the spring as soon as the frost is out of the ground and all danger of "heaving" of the soil is over, and the fine dressing of manure is then cultivated in.

PROFITS OF STRAWBERRY CULTURE.

The question of dollars and cents is usually an interesting theme to the fruit grower, especially if it is considered as profit. The following results from an acre in four years, are obtained from an average taken from the reports for four years of six different fruit farms, the market in

all cases being New York and Boston. The crops were considered but fair yields and on ordinary land properly cultivated.

Three crops of 350 bush. each at 10 cts. per quart.....	\$3,360.00
Plants sold in four years.....	300.00
	<hr/>
	\$3,660.00

CONTRA.

Cost of original plants..	\$ 40.00
Manure.....	175.00
Cost of cultivating.....	225.00
Mulching.....	75.00
Picking at 2 cts. per quart..	672.00
	<hr/>
	\$1187.00
Leaving for profit.....	<hr/>
	\$2,473.00

We consider the above figure a fair average taken together. If the land be rented the cost of rent must be added: and also, it frequently occurs from one cause and another, the price received per quart may be less than that named which is nett, commission and transportation having been deducted. On the other hand a higher figure may be obtained for superior fruit, and again the above figures would fluctuate in different sections of the country, particularly in the South where fruit is raised for Northern markets: the price obtained for early fruit from the South is very much more than the fruit grown North will bring, though of course, expenses will be somewhat higher, still not enough more to reduce the profit to the Northern standard. Those of our readers who reside in a favorable location in the South will find raising strawberries for Northern markets a most profitable industry.

INSECTS AND DISEASES.

No other fruit in the catalogue is generally so free from diseases and the attacks of insects as the strawberry: indeed, we may say that with one or two exceptions the insect enemies of this fruit are not very formidable. Of late years some entomologists have made the insect enemies of the strawberry a special study and by their indefatigable efforts have placed in our hands methods whereby we may subdue these pests of the garden. We cannot too forcibly express our sincere and heartfelt thanks to these specialists for their efforts.

The Strawberry Worm—Saw Fly of Saunders. Emphytus maculatus, NORTON.

This insect is one of the most formidable with which we have to deal, though fortunately it is not found in all sections. The description given by Prof. Saunders in his valuable work on Insects cannot be bettered, and we quote it with pleasure. "The egg is placed within the substance of the stem of the leaf early in May, by means of the peculiar, saw-like apparatus with which the female is provided. It is a small fraction of an inch long and of a white color; its presence produces a slight swelling on the stalk, and on splitting the stalk the egg may be found. The eggs absorb moisture from the stem and increase in size, and in about a fortnight hatch, when the young worms begin to feed on the leaves. At first they



Fig. 9.

attract but little attention, as the holes they make in the leaves are small, but as they increase in size they often completely riddle the foliage and destroy its usefulness. When full grown they are nearly three-fourths of an inch long, of a pale greenish color, with a faint whitish bloom. The skin is semi-transparent, revealing the movements of the internal organs which show through as dark greenish patches. There is a broken band along each side, of a deeper shade of green, and below this the body has a yellowish tint. The head is yellowish brown with six black dots. Those belonging to the fruit brood of larvæ appear on the wing early in July, when eggs are deposited for a second brood, which are found during August."

It is while in the larval condition that this insect is so destructive to the Strawberry leaf. Fig. 9 shows the different stages of the worm.

Remedy.—One ounce of Hellebore to two gallons of water or two teaspoonfuls of Paris green to two gallons of water, and shower on the vines, are both highly recommended. The first-named we have tried with great success.

THE STRAWBERRY LEAF ROLLER.

Anchylopora fragariæ, RILEY.

This pest is perhaps the most destructive of any with which we have to contend; indeed so extensive were its ravages in some sections that it threatened to ruin a vast number of large plantations; even yet in some sections it does deadly work. Prof. Forbes quotes from the writings of Prof. C. V. Riley as follows: "The larva or caterpillar measures when full grown, a little more than one-third of an inch. In color it varies from a very light yellowish-brown to a dark olive-green or brown, with a body soft and somewhat semi-transparent. The second segment has a shield above, of a shining, yellowish color, and on each segment or wing of the body are a few pale spots, from each one of which arises a single hair. It crumples and folds the leaves, feeding on the pulpy substance, and causes them to appear dry and seared. It most usually lines the inside of the fold with silk. There are two broods during the year, and the worms of the first brood which appear during the month of June, change to the pupa state within the rolled-up leaf, and become moths during the fore part of July."

Remedy.—We have found the best remedy is to mow the field after fruiting, and burn it over when dry; this remedy is also practiced by large growers where fields are affected with the pest. Many claim that the use of poisons in the proper season, will accomplish the desired object; but in our experiments we have failed to reach such good results as with the first-named remedy.

THE CROWN BORER.

Tyloclerma fragariæ, RILEY.

This pest is confined almost wholly to the West and far North, and but seldom seen elsewhere. It is a small insect about an eighth of an inch long and bores into the crown of the plant destroying the embryo fruit-stalks and leaves.

Remedy.—Plow up the ground in June or July at which time the crowns are full of the half-grown larvæ.

STRAWBERRY ROOT BORER.*Anaesia lineatella*, ZELLER.

This insect is very destructive and especially where it is found in large numbers. The borer is a small caterpillar, about half an inch long and of a pink color, changing in June to a small, reddish-brown chrysalis, described as follows by Prof. Saunders: "The moth is very small, of a dark-gray color, with a few blackish-brown spots and streaks on the fore wings. The moth lays an egg on the crown of the plant late in July or early in August, which soon hatches; the small caterpillar burrows into the heart of the plant, and remains in one of the chambers during the winter. The channels formed by this larva through the crown and longer roots of the plant soon cause it to wither and die, or, if it survives, to send up weakened and almost barren shoots."

Remedy.—There is no effectual remedy but digging up and burning the plants, and making a new bed in a different part of the field.

THE WHITE GRUB.*Lachnosterna* SP.

This insect, under the common name of May Beetle, and its ravages, are too well-known to need any lengthy description. In its larvæ or grub condition it is a deadly enemy of the roots of many plants; the grub fully grown is about an inch-and-a-half long, of a whitish color with brown head; they are usually most numerous in dry pastures and old meadow lands, the roots of the grass in their weakened and worn-out condition falling easy prey to the grub. This fact we believe to be very strong testimony in favor of our system of thorough cultivation and stirring of the soil so often urged. The only remedy which is effectual, is to plant the land occupied by the Strawberries with hoed crops which require frequent cultivation, and may destroy the grub, in time.

GOLDSMITH BEETLE.*Cotalpa lanigera*, LINN.

This insect or grub has proved very destructive to the Strawberry roots in many parts of the country, especially in New Jersey. In Monmouth county this pest has been particularly injurious, many fields having been totally destroyed and others badly hurt. Its habits are similar to those of the May Beetle, to which family we believe it belongs. The same remedy as for White Grub recommended.

TARNISHED PLANT BUG.

Lygus lineolaris, BEAUV.

While this insect is not as a rule very destructive, the fact of its being the cause of the berries "buttoning" or in other words the small, knotty berries, will be of some interest to the the reader. Prof. Forbes speaks of it as follows: "The tarnished plant bug is one of the true bugs, and is consequently destitute of jaws and provided with a suctorial beak. The adult or winged form is about a fifth of an inch in length by half that in width, oval, yellow or greenish yellow, more or less striped or mottled with dusky. It is extremely variable, but the most constant marks are five longitudinal white lines on the thorax (often reduced to spots, which then occupy the anterior margin), a white *y*-shaped mark on the scutellum, which is sometimes broken into three white points arranged in a triangle, and a white blotch tipped with black near the end of the wing covers.

"The young are much less variegated than the adult, and more distinctly green. There are four stages between the egg and the mature insect, corresponding to as many different moults. In all except the first stage, the young may be distinguished by the presence of five black dots upon the back arranged in a pentagonal form.

"The old bugs winter under rubbish upon the ground, emerge early in spring, cluster upon the unfolding buds of fruit trees, the fresh foliage of strawberries and other early vegetation, and there lay their eggs, old and young together draining the sap of these succulent growing parts. The effect is to arrest the development of the leaves, and even to kill them, and in the case of the strawberry to interfere with the growth of the fruit, sometimes, at least, causing what is known as the "buttoning" of the berry. Later in the season the buds and leaves of flowering plants and vegetables, especially the cabbage and potato, are attacked.

"There are at least two broods in a year, one maturing in May and June, and the other in July and August, and it is possible that there is still another intermediate.

"Although a very few of these insects are devoured by birds, no natural enemies are known to have any positive effect upon their numbers. There is some evidence, however, that wet seasons are injurious to them.

"The general distribution of these plant bugs at all seasons of the year makes it impossible to exterminate them or seriously to diminish their numbers by artificial means, unless the clearing up and burning of rubbish late in autumn might have that effect. The attention of the orchard-

ist and gardener whose fruits and vegetables are threatened by this insect, should be directed to measures for defending directly the crops endangered. The insects may be caught easily in cool mornings by beating with an insect net the tips of the twigs and leaves of the plants in which they usually lie concealed at that time, and may then be readily killed by shaking them out into a bucket containing a little kerosene, or a film of kerosene on water. They may also be destroyed by sprinkling or dusting the foliage with pyrethrum, or spraying it with diluted kerosene emulsion. Any and even all these measures of defense may be used with great profit whenever the insects are numerous enough to threaten any serious damage."

THE DUSKY PLANT BUG.

Deræocoris rapidus, SAY.

Prof. Forbes says: "This insect has not hitherto been suspected of any injury to cultivated vegetation, as far as I can learn, nor has it even been mentioned in the literature of economic entomology. Its occurrence everywhere in strawberry fields last spring, with the mischievous tarnished plant bug already treated, both in the same ages, stages and situations, and both found only on the fruit, left no room for doubt that this species was in part responsible for the mischief apparent.

"The adult is narrowly oval in outline, about one-fourth of an inch (7 mm.) in length, and eleven-hundredths of an inch wide. The general color is dusky, tinged with yellow, except the head and thorax, which are orange brown. The eyes are red or black; the antennæ very long, reaching the tip of the abdomen, black at the base and banded with white upon the second and fourth joints. The prothorax is yellow, the anterior fourth being orange brown, the same color as the head. On the posterior third is a transverse black band, usually constricted in the middle, and often divided into two oblong black blotches. The wing-covers are black, tinged with yellowish, and more or less reddened at the tip of the leathery portion, which is there sometimes almost carmine. The membrane is uniform dusky and the veins black. The abdomen is black, with a red stripe upon either side; the last segment of the abdomen is wholly red. The young are similar in form to those of the tarnished plant bug, but are distinguished by their dark green and deep red colors, and by the snow-white tip and basal ring to the last joint of the antennæ, the remainder of the joint being red."

STRAWBERRY PLANT LOUSE.

Siphonophora fragariae, KOCH.

The well-known entomologist, Prof. S. A. Forbes, speaks of this insect as follows: "In spring and early summer this species occurs on the under side of the leaves and on the stalks of the growing fruit, causing the leaves to wither, and diminishing the size of the berries. In autumn the lice move to the crown, where they may be found between the bases of the roots. In November the wingless females here lay their eggs, which survive the winter to hatch in the spring. The winged form probably appears at irregular intervals throughout the summer, as is usually the case with the plant lice, and this is consequently the time when the species spread from field to field. At the time when the insect does its principal injuries, viz: previous to the ripening of the fruit, the usual standard remedies for the injuries of plant-lice are impracticable, since the poisonous powders and fluids which are used for the destruction of these insects, would render the berries inedible. The proper season to attack this pest by local applications is doubtless in autumn, when the lice are congregated upon the crown; at this time, if desirable, they might easily be exterminated by the thorough application of the kerosene emulsion to the plants. This would have the advantage of destroying both the living insects and the eggs. It is at this time, also, that the field should be plowed up, if it proves to be necessary to resort to this treatment to arrest the multiplication of the insects. As the eggs remain during the winter upon the crowns of the plants, not hatching until spring, care should of course be taken in forming new plantations, that the young plants are obtained from fields not infested by lice, or else that these and their eggs are destroyed upon the plants before they are set. Although I have not yet had any opportunity to experiment upon this matter, I have little doubt that dipping the plants in the kerosene emulsion or in a simple mechanical mixture of kerosene and water, about three parts to one hundred, would be sufficient for this purpose, and secure the new field against infection from the old."

We cannot within the scope of this work, describe the many different species of insects which figure as enemies of the Strawberry, though we have treated in a brief manner of the most formidable. To the reader who desires more information on this most interesting subject, we recommend the works of Prof. Saunders and Mrs. Treat, and the less costly one by Prof. Forbes, together with the valuable writing of Prof. C. V. Riley, now at the head of the department of Entomology at Washington, to whose research the world owes not a little.

The Strawberry, as before mentioned, is but little liable to diseases and the few not very formidable insects.

During warm, wet weather it is affected by the rust, a disease of a fungus nature and similar in appearance to that which sometimes affects the canes of some varieties of Blackberries. Applications of ashes are good in such cases.

Some varieties are sometimes affected with the "scald" or burning of the foliage, which, however, is only injurious in extremely hot sections.

DESCRIPTION OF VARIETIES.

Under this heading we have described such varieties as are best known throughout the country; we have made every effort to make the descriptions accurate and worthy of the consideration of the planter who desires to select varieties for planting either in the field or garden.

Although our list includes some varieties which are new and comparatively untried, we have given them place because of the fact that they possessed some very desirable qualities and may prove valuable throughout the country. We have no desire to place before the reader any descriptions of a flattering nature, which would lead him to plant of these varieties without discrimination. We repeat that with new varieties it is next to impossible for any one to determine their value throughout the country without first testing it, and therefore again we urge that the planter make it a point to experiment with all such varieties before planting largely of them.

The illustrations under this heading were in the main drawn from ordinary specimens of the fruit grown under field culture, and we consider them fair representations of their kinds.

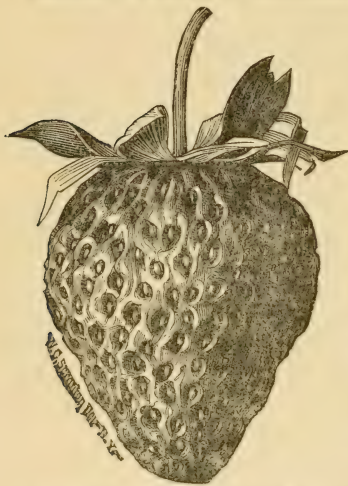
The varieties of all described are perfect in blossom except those marked (P.) which are pistillate.

Agriculturist.—Large conical, with long neck; color reddish crimson; flesh deep red and sweet. Plant a strong grower, hardy and productive; excellent for home use but rather soft for market. Season medium. Originated with Seth Boyden of Newark, N. J.

Arlington.—This variety was introduced from Maryland. Described as “a vigorous grower and very prolific; fruit large, bright red and carries well.” Many are questioning the name of this variety, claiming that they have tested it and found it to be identical with Champion.

Arnold’s Pride.—A new variety not yet fully tested; originator’s description: “A very late strawberry of unequaled flavor and is believed to be the largest and most attractive strawberry ever grown; equally hardy and more productive than Wilson’s Albany.”

Atlantic.—A berry of comparatively recent introduction. Attracting much attention in some sections it has not yet been thoroughly tested throughout the country, and many cultivators question its adaptability to strong, heavy soil. It is a beautiful, highly-flavored, late variety, of especial value for market on this account together with its firmness and productiveness. Plant very vigorous; berry dark crimson, glossy, distinct; conical form, very regular and handsome. Originated in the sandy fields of New Jersey and introduced by Wm. F. Bassett of Hammonton, N. J.

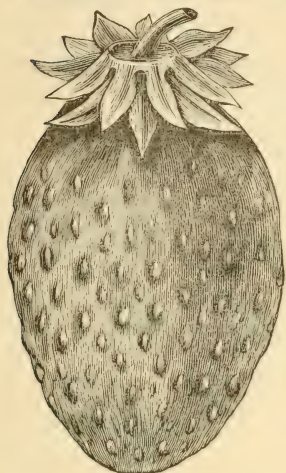


of our own country successfully; however, we do not recommend it for general cultivation.

Belle.—After thoroughly testing this variety we cannot recommend it except for the amateur.

Boston Pine.—(Bartlett.) Originated with C. M. Hovey. In years past it was considered one of our best varieties, but has been entirely superseded by better ones.

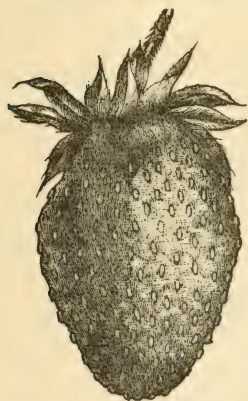
Belmont.—Originated with W. Heustis & Son of Belmont, Mass., and is described as of large size, oblong, crimson in color; very solid and sweet, and of extra flavor and quality. Its texture is exceedingly fine, having no hard or unripe spots: it colors evenly and perfectly, and is quite remarkable as a carrier and keeper.



Black Defiance.—Large, irregular in shape, dark, glossy crimson, flesh moderately firm, of high flavor; not very productive. Originated with E. W. Durand.

Black Giant.—Of recent introduction and highly spoken of by some; it should, however, be tested before being planted extensively. Originator's description: "Very large, very firm, of deep, rich color; a thrifty grower and very desirable for market on account of its firmness."

Bidwell.—Introduced from Michigan and is very popular throughout the country, especially with the amateur and others who grow for home use; it is also profitable for market in some localities but being a little soft, should be sent only to near markets. The plant is very vigorous and prolific; berries large, conical with slight neck but quite irregular; bright crimson, good quality and quite firm for a large berry. It requires good culture and strong, heavy, rich soil to do well.



Big Bob.—*P.* Originated with W. F. Nigh of Ohio. The plant is a good grower and in some sections productive; berry large, moderately firm and of good quality; season early. This variety the originator claims was found growing between a row of Russell's Prolific and Jucunda, which accounts for its fickleness; in our opinion it has many of the peculiarities of the Jucunda and will perhaps succeed well in soil suitable to that variety, viz.: a heavy, rich soil with good cultivation. We are fully convinced from the results of a number of experiments with this variety that it will not succeed in light, sandy or moderately rich soil.

Bright Ida.—A new seedling produced by the originator of Arnold's Pride and described as a strong-growing and productive sort; fruit large, conical, and quite uniform in size and shape; color bright scarlet and very attractive in appearance.

Brilliant.—Introduced some years ago and for a short period created quite a furor but has proved to be of little value.

Brooklyn Scarlet.—Originated with A. S. Fuller; a good variety for home use.

Burr's New Pine.—*P.* An old variety entirely run out.

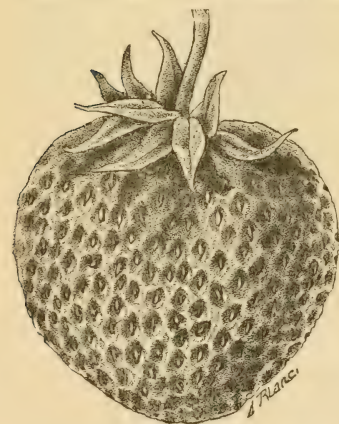
Bubach No. 5.—*P.* Originated with J. G. Bubach of Princeton, Ills., who describes it as very large, berries of uniform size, fine color and form with unsurpassed productiveness and good quality of fruit, with equal vigor, stockiness and hardness of plant. The leaves are very large and of a dark green color. Early as Crescent; ripens all over at once.

Burr Oak.—Not recommended.

Capt. Jack.—An old variety and in some sections very productive; medium to small in size, short, conical. Flesh pink and firm; poor in quality. Originated with Sam'l Miller of Mo.

Caroline.—Now of no value except to the amateur.

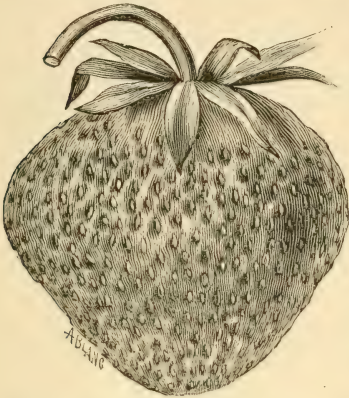
Cinderella.—At one time considered very promising, but experiment has failed to bring out lasting desirable qualities. Originated with Oscar Felton of N. J.



Colonel Cheney.—*P.* This variety with Wilson's, Capt. Jack and Hovey, was at one time the main stay of growers for market. We, however, have never considered it worthy of extended cultivation; the plant is vigorous and

productive; the berry is of good color but small and of poor flavor.

Champion.—*P.*—(*Windsor Chief.*) One of the most productive and profitable of all strawberries, but it requires heavy soil and thorough culture. Of good size, form and color; firm; season late.

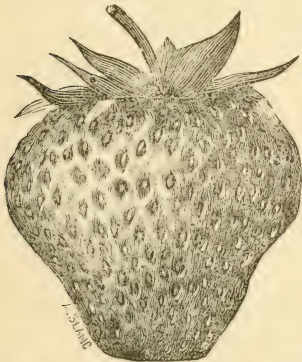


Continental.—Superseded by better sorts.

Cornelia.—*P.* A new variety originated with Matthew Crawford of Ohio, and destined to become very popular by reason of its large size, productiveness and lateness. Originator's description: "The plant is very large and stocky and one of the healthiest and hardiest in every way; it is late in blooming and consequently is not liable

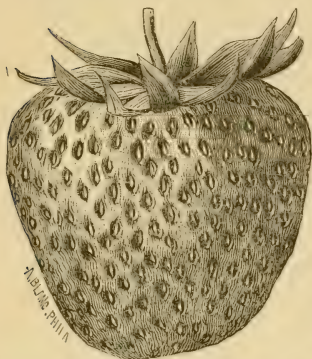
to be injured by late frosts. It combines all the desirable qualities of a market berry and is of especial value for canning." Being so hardy it will be found desirable in Canada and other cold sections.

Crescent — *?*. Unquestionably one of the finest of our *F. Virginiana* species; enormously productive; in fact to such an extent that it is termed "the lazy man's berry." We have already stated the result of some of our experiments with this variety, and are perfectly satisfied that no other known variety will succeed so well under neglect as this; while under proper treatment it yields enormously. The plant is very vigorous, so much so that it covers the ground entirely in a short time, and therefore the rows must be kept thinned or the crop will not do so well. Fruit medium to large, brightest scarlet, of fair quality and moderately firm. When



fertilized by Sharpless we doubt if its equal can be found; it is very popular throughout the country succeeding well in all sections. Season early. Originated in Conn.

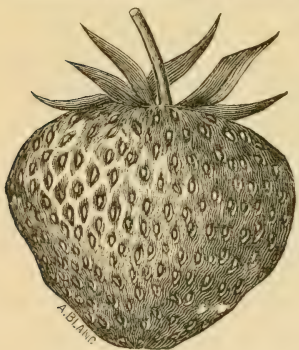
Connecticut Queen.—Of recent introduction; when fully ripe it is of a half green, uninviting appearance, and on this account will never become popular. The fruit we consider very fine in quality; of medium size and very late. Recommended only for amateurs.



Countess.—Sent out by the Agricultural Department at Washington. Berry medium in size, round, of a light red color, rather soft for shipping; season early to medium; quality good. It has been tested somewhat extensively in the North and Northwest, where it does exceedingly well. Experiments yet to be tried must

determine its value in other sections. It is, however, quite probable that the variety will be found of general adaptability, as the horticulturist of the Department is generally careful that anything which emanates from his department shall show some reasonable signs of excellence.

Charles Downing.—One of the best known of varieties and formerly extensively cultivated; of late years, however, it rusts and blights badly in some sections. For the garden it can scarcely be equaled. Medium to large, round, obtuse-conical, very regular in form; bright scarlet; flesh firm and juicy with a sprightly sub-acid flavor. Originated with the late J. S. Downer of Ky., and named in honor of the veteran Pomologist whose recent death the horticultural world deeply mourns.



Columbus Wilson.—After some seasons of experiment with this variety we fail to find in it any qualities which render it more than ordinarily desirable for cultivation, notwithstanding the fact that it is claimed to be an improvement on the old Wilson's.

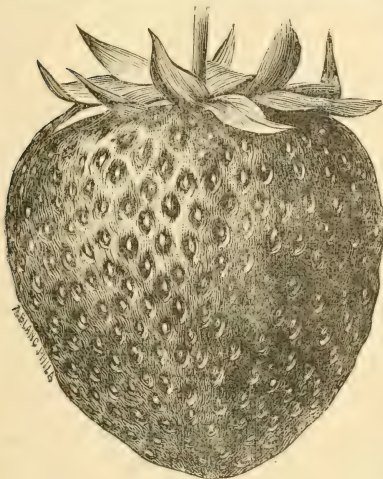
Cumberland Triumph.—One of the best varieties for the South, in which section it is very productive, firm and of good color. In the North, however, it requires high culture. Berry large, light scarlet, of high quality but rather soft; in form bluntly obtuse-conic. Originated in Pa.



Crystal City.—The earliest of all strawberries and of good quality, fair size, firm and of rich color. A very desirable variety for the garden and deserves far more attention than it now receives.

Duncan.—A very desirable berry for the home garden, but too soft for shipping; color bright scarlet. Originated in N. Y.

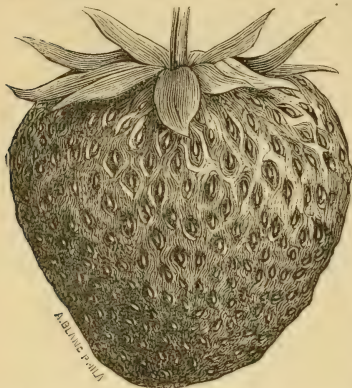
Daniel Boone.—*P.* Experiments with this variety the past season impressed us very favorably. It is of large size, very productive, firm and handsome, and is destined to become a popular market variety. Originated with A. D. Webb of Ky.



Dewey.—(No. 125.) This is one seedling out of a batch from seed of the Jersey Queen and Prince of Berries, thought to be from the latter. Plant fairly vigorous and healthy, moderately productive. Berries obtuse-conical, of good size, brilliant scarlet with a brisk, spicy, delicious flavor. Originated with P. M. Augur & Sons, Middlefield, Conn. Not yet offered for sale.

Downer's Prolific.—Very early, hardy and prolific; a good variety for a near-by market. Originated with J. S. Downer of Ky.

Daisy.—(*Daisy Miller.*) Described as a large, handsome, vigorous variety, of good quality; not yet fully tested. Originated with Sam'l Miller, Bluffton, Mo.



Dollar.—Very pretty, firm and of high quality, but foliage blights badly. Blossoms and fruits in the autumn in New Jersey, thus giving two crops of fruit. Controlled by J. T. Lovett of N. J.

Duchess.—A very good variety on heavy soil; of no value south of N. J. Berries are large very uniform in size and shape, of bright scarlet color, moderately firm and of good quality. Originated with D. H. Barnes, Poughkeepsie, N. Y.

Durand's Seedling.—Large oblong, sometimes flattened; color scarlet, flesh firm and of good flavor; like the majority of Mr. Durand's seedlings it requires high culture to do well.

Early Adela.—We do not consider this variety of value.

Early Scarlet.—An old variety now but little cultivated.

Early Canada.—Very popular in Canada where it originated. It is a valuable early berry, not yet fully tested.

Early Queen.—Large early, productive but of poor flavor.

Ellisdale.—New and untried.

Emily's White.—A very late, strong-growing and prolific variety; fruit light red nearly white; of small size and valuable only to the amateur.

Eureka.—New and not yet fully tested.

Erubus.—Of no value.

Emerald.—From Ireland. It has fruited for several years on Long Island, N. Y. State and has proved very productive. Fruit large and of superior quality.

Fairy.—A desirable white variety for the amateur but like others of the same color is of little value to the general grower.

Finch's Prolific.—A firm berry of medium size and not very good quality, but attractive. Succeeds well in some sections under good cultivation.

Forest Rose.—A popular variety in the South, but it requires superior culture. A good market berry where it succeeds. Introduced by a Mr. Felters of Ohio.

Garden.—Of no value.

Garrettson.—Not having thoroughly tested this variety we give the originator's claims; he says, "It is wonderfully productive, healthy, strong, vigorous and especially drought-resisting. Fruit uniformly globular, large size, bright crimson, good quality and very firm." It remains of uniform large size and regular shape throughout the season. Awarded first premiums at Queens Co. Fairs. Introduced by a Mr. Garrettson of Queens Co., N. Y.

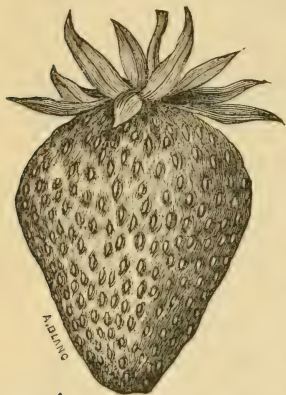
Grand Darke.—Originated with J. W. Adams of Mass. Promising but not yet thoroughly tested.

Gebhardt's Favorite.—Has only a local reputation; not desirable for general cultivation.

Gold.—*P.* (No. 24.) A seedling of the same lot as Jewell. Plant vigorous, healthy and very productive. Fruit medium to large, very regular, conical. Color scarlet with beautiful golden seeds. Originators P. M. Augur & Sons, Conn. Not yet offered for sale.

Great Ontario.—Originated with Robt. Johnston of N. Y., who claims for it strong growth, large size of plant and productiveness. Berry of superior quality and good size. Season medium early.

Glendale.—A very productive variety; profitable for market. It is not, however, of best quality.



Boyden of Newark, N. J.

Golden Defiance.—*P.* Large, very late and of excellent quality; not very productive and only moderately firm. Almost entirely superseded by better varieties of recent introduction. Originated with a Mr. Miller of Pa.

Glossy Cone.—One of the many new varieties introduced in 1882. It is of unusual beauty, but being of poor quality and requiring high culture is not generally worthy of cultivation.

Green Prolific.—*P.* This old variety still retains its popularity in some sections; it is now but little grown. Originated with Seth

Gypsy.—*P.* A good variety for general cultivation; of medium size, best quality and on good land large; ripens in mid-season and is very productive. Those who desire a highly flavored variety for home use, should by all means try this little beauty.



for general cultivation.

Great American.—Very large, irregular form; dark crimson. It requires high culture. We once saw a patch of this variety planted on very rich soil and given high culture, which yielded the largest and greatest quantity of fruit we ever saw on the same amount of ground. When given the cultivation it requires it is of enormous size. We cannot, however, recommend it

Hart's Minnesota.—A fine-looking, highly flavored, early berry of good size: firm and a vigorous grower. A good berry for the amateur, but not sufficiently productive for market.

Hovey's Seedling.—*P.* One of the best of the old varieties and the first pistillate variety which was considered worthy of cultivation; it is now, however, almost entirely superseded by better sorts. Berry large, conical, bright crimson, handsome; in flavor sub-acid. Originated with C. M. Hovey of Boston, Mass., in 1834.

Henderson.—Introduced by Peter Henderson of New York. We have not yet tested it sufficiently to give an impartial description of its merits or demerits. The description is as follows: "It is doubtful if there is another strawberry in cultivation, having such a combination of good qualities as the Henderson. The fruit is of the largest size, early and immensely productive; but its excelling merit is its exquisite flavor. Whether for family or market use the Henderson is certain to become a standard sort; and its strong, healthy growth will adapt it to every soil."



Hervey Davis.—Unfortunately it is that this variety requires such high culture, for it is certainly a very fine berry; of regular form, high quality and firmness; color bright scarlet; season medium. Originated with J. B. Moore of Concord, Mass.

Hooker.—Originated with the late H. E. Hooker of Rochester, N. Y. One of the finest varieties for the amateur; but the berry is too soft and dark, and the plant too tender for general cultivation.

Huddleston's Favorite.—*P.* A very large berry of good color; flesh firm with a rich, spicy flavor; it is very productive but not sufficiently firm for market. Introduced by E. Y. Teas, Indiana.

Iowa Prolific.—Of local fame only.

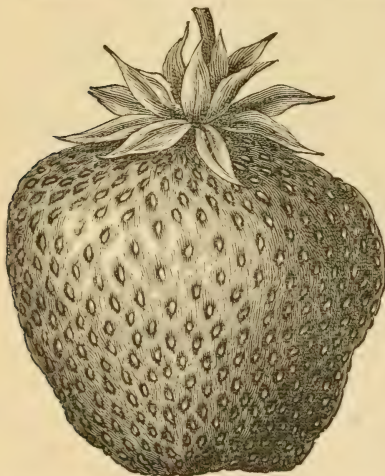
Indiana.—As we saw this fruiting during the season of 1884, we were more fully convinced than ever that it would ere long prove one of our most valuable varieties. It has all of the good qualities of its parent, the Downing, with none of that variety's defects. Berry of medium size, beautiful scarlet color, very firm. With us it is very prolific.



James Vick.—A new variety which is rapidly gaining favor. Very prolific and unless it receives thorough culture it is of small size; the plants should be kept in hills and the runners cut close to prevent an increase of plants; under these conditions of

culture it will prove to be a very prolific and extremely profitable berry for market. In color it is very beautiful; quality good. Originated with Mr. Miller of Mo. and named by its introducer in honor of the well-known florist and seedsman the late James Vick of Rochester, N. Y.

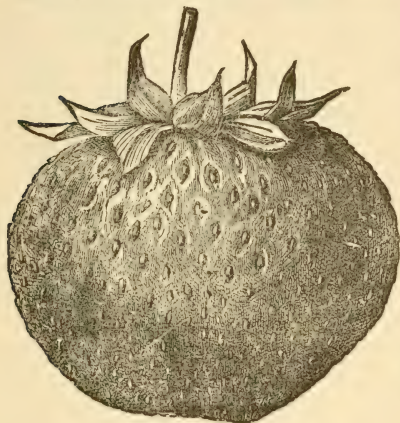
Jewell.—*P.* This remarkable berry originated with P. M. Augur and Sons of Middletfield, Conn., from seed of the Jersey Queen and Prince of Berries. Season medium, size large, color bright red, changing to crimson when very ripe: blossom pistillate, enormously productive. This berry is being highly spoken of by prominent growers throughout the country and although I have not yet fruited it, I consider it one of the most valuable of recent introductions, basing my opinion on the plants and fruit I have seen grown in different soils. For so large a berry it is remarkably firm and will be valuable for market on that account. Pres. Lyon of the Mich. Horticultural Society gives



its value for market as 10; the highest point of excellence.

Sharples and Wilson are either good varieties to fertilize with. See full page cut, last page of cover. In order to accommodate this cut to the page, five berries were cut off of the left side of the cluster.

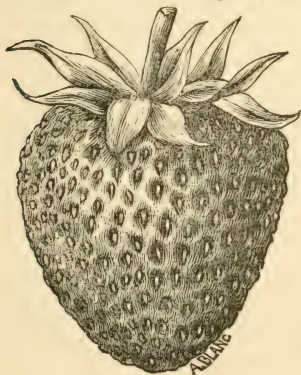
Jersey Queen.—*P.* A beautiful, very large berry of high quality, season late. This variety requires the very highest cultivation, without which it rarely does well. One of the largest and finest berries in cultivation.



Jumbo.—Considerable discussion has arisen during the past year concerning the identity of this variety. Men of unquestionable veracity and high standing in the horticultural world pronounce it to be the Cumberland under a new name. We would caution the reader not to plant extensively of this variety, until the truth regarding it is known.

Kentucky.—This variety was formerly the only reliable late berry for both market and home use. In some localities, particularly the South, it still holds its own. Of large size and very productive; flesh firm, and of high quality. Originated with J. S. Downer of Ky.

Legal Tender.—Vigorous and productive: berry small. Not yet fully tested.



Kirkwood.—Now proved beyond all question to be identical with Mt. Vernon.

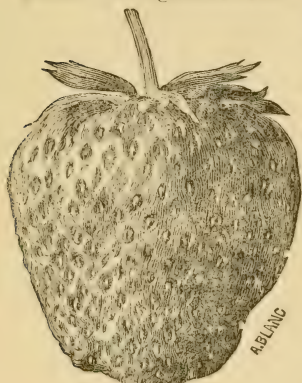
Lady Finger.—An old variety from N. J., which formerly held a prominent place but has been superseded by better ones.

Ladies' Pine.—*P.* An extremely delicious flavored berry of handsome appearance: good for the amateur's collections where it can receive high culture.

Lady of the Lake.—Formerly a favorite variety in the locality where it originated, but of late years it has been but little cultivated.

Lacon.—A good berry but will not succeed in light, sandy soil.

Lida.—*P.* Originated with Wm. Parry of Parry, N. J. Raised from seed of *King Cluster*, in 1880. Described as a pistillate variety of large size, very productive, bright red color, heart shape, regular and uniform in appearance, ripens medium season, firm in flesh, a good shipper and of excellent quality. It is a promising variety.

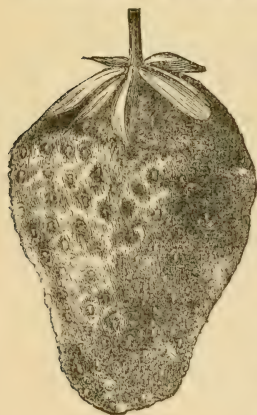


Les Quatre Saisons.—We cannot recommend this variety.

Lonelle.—Not yet fully tested.

Lennig's White.—The only white variety grown worthy of the space it will occupy.

Longfellow.—A fine variety; very large, elongated and somewhat irregular. Dark glossy red, having the appearance of being varnished; fruit rich and excellent; valuable for the garden. Season medium to late.

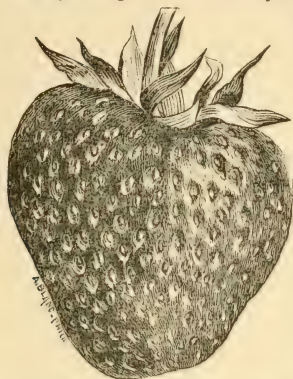


Magnum Bonum.—A new variety not yet fully tested: from partial tests its quality and size proves inferior.

Marvin.—Being a seedling of the *Jucunda* it requires high culture and heavy soil: it is a beautiful, large, glossy berry of excellent quality; very late. Desirable for the amateur.

Manchester Jr.—A seedling of *Manchester* produced by the originator of that variety who claims that it is 50 per cent larger, and will give double the quantity of fruit of its parent.

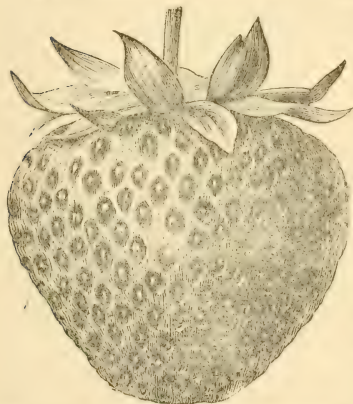
May King.—This variety has proved a valuable acquisition; it resembles the Crescent in every way except that its blossoms are perfect. It is of the same rampant growth, enduring foliage and great productiveness. Berry of the form and size of its parent, the Crescent. It is earlier than that variety and of better flavor. Very promising, and strongly recommended for trial.



Mrs. Garfield.—A variety of recent introduction, not yet thoroughly tested, but indications point to its great desirability. The plant is a very strong grower, healthy and vigorous. In form the berry is similar to its parent, the Crescent, with the same bright scarlet color; flavor very high; fruit

large, firm and early. Originated with Matthew Crawford of Ohio.

Manchester.—*P.* We have had abundant opportunity to know of and test this variety in different soils and locations, from the time of its introduction. Originating as it did, in the sands of N. J., it is a remarkable fact that it has adapted itself and proved congenial to so many soils and climatic conditions. It is remarkably productive and uniform in size; of great beauty and high quality. It succeeds well upon all soils except stiff clay, and everywhere except in sections of the South and where the rust is prevalent. Most attractive in appearance, very firm and of a rich sprightly flavor. Season late to very late. When fertilized by the



Sharpless its size is very materially increased. Originated in Manchester, N. J., and introduced by J. T. Lovett of Little Silver, N. J.

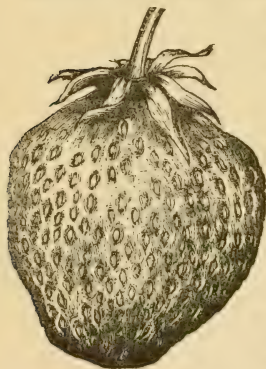
Monarch.—(*of the West.*) An old variety, well-known and highly esteemed; light in color and good flavor, but soft. Requires good culture.



Maggie.—We have tested this variety for some years and consider it one of the best for home use; it is of good size and color; of very high quality. A good berry for shipment to near markets.

Memphis Late.—Superseded by better sorts.

Miners.—(*Prolific.*) One of our old favorites. Fruit large to very large, plants vigorous and very productive; of good flavor and very desirable for the garden and also for near markets. Origin, New Jersey.



Mount Vernon.—(*Kirkwood.*) Large, very productive and late; plants vigorous; fruit of good quality. This variety is not very desirable on account of its tendency to scald.

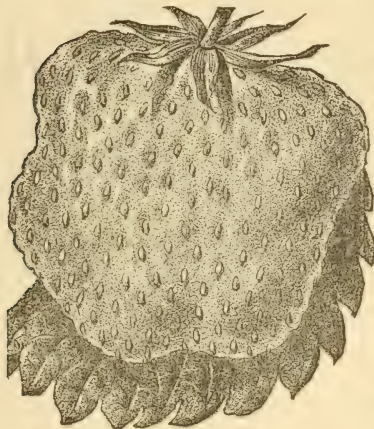
Neunan's Prolific.—A very popular variety in the South, and one of the first shipped to Northern markets where it commands a high price. Large, obtuse-conical, light scarlet, very firm and good. Origin, South Carolina.

New Jersey Scarlet.—Worthy of cultivation only on light, sandy soils.

Nicanor.—Some years ago very popular because of its good flavor; it is now but little cultivated. Originated with Ellwanger and Barry, Rochester, N. Y.

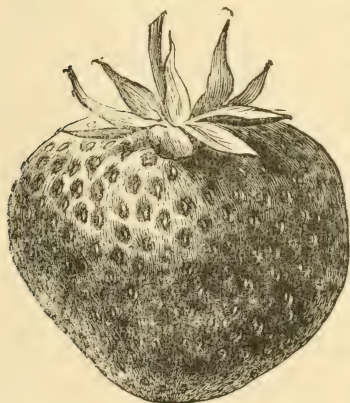
Nigh's Superb.—Large and of high quality, but requires the best of culture.

Old Iron Clad.—(*Phelps Seedling.*) We consider this variety one of the very best of the early ripening kinds; it is of good size, good quality, firm and very attractive in appearance. The plant is very vigorous and productive; it is being rapidly tested throughout the country and meeting with great favor. Very desirable at the South. We tested this variety quite extensively in N. J. and it paid better than any other kind on the place. It was the earliest and held on nearly to the last, giving more pickings and averaged larger berries than almost any other variety. We can highly recommend it for market.



Oliver Goldsmith.—Succeeds only in favored localities, requiring rich soil and a moderately warm climate.

Parry.—A seedling of the Jersey Queen and though not yet fully tested we believe it is destined for a great future. Plant vigorous, clean foliage; berry very large, obtuse-conic, bright, glossy scarlet, firm and of best quality. Ripens in mid-season; it is a fine berry for home use or cultivation for market. Originated with Judge Parry of N. J., in honor of whom it is named.



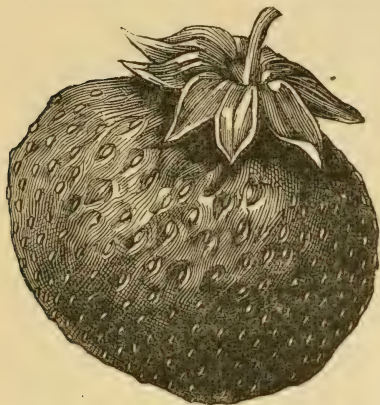
Parmalee's Neptune.—A seedling of the Crescent, produced by the same originator. It is said to surpass its parent in all respects; not yet fully tested.

Pautuxant.—Not yet fully tested.

President Lincoln.—A good variety but requires heavy soil and thorough

culture. Season medium to late.

Prince of Berries.—Of recent introduction, large, fine and of high quality; requires very high culture for success. Originated with Mr. Durand of N. J.

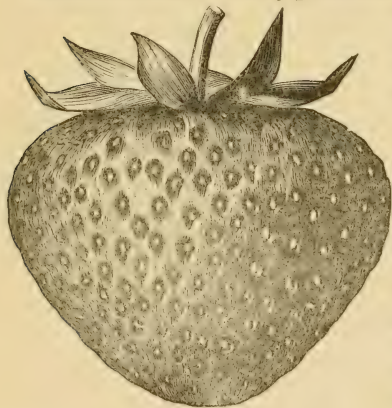


Park Beauty.—*P.* Introduced as a new and distinct variety, but proved to be identical with Crescent.

Primo.—A good variety where it can be given high culture, otherwise it will prove a failure; good size, firm and delicious.

Pioneer.—Of great value on account of its large size, fine quality and early. It does not succeed south of New York.

Piper's Seedling.—A very profitable variety. Very early, of good size, firm and productive; berry dark crimson, bluntly conic, dry and rather insipid; requires good soil for success.

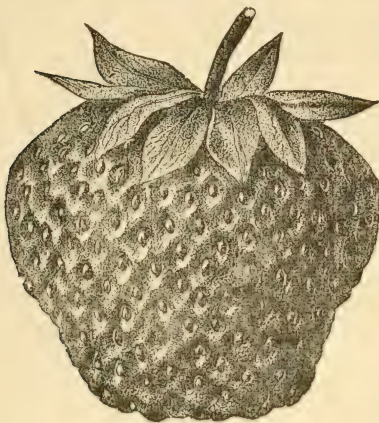


Queens County.—A new applicant for public favor. Originated with Dr. F. M. Hexamer, an experienced fruit grower of New York State. It is a beautiful, bright red color, of good form and of superb flavor. Ripens all over at once and solid to the core. Perfect in blossom; plant very vigorous and a good grower. Season medium to late.

Red Jacket.—Formerly a great favorite and even now planted to some extent by amateurs. A vigorous-growing, very prolific early berry of the highest flavor. Large size and bright color.

Russell's Prolific.—*P.* Not now cultivated to any extent.

Sharpless.—This is one, of the finest and largest varieties in cultivation; uniformly very large and irregular in shape. Moderately firm, of good quality and productive. It succeeds best on sandy loam if well manured. Worthy of extended cultivation in all sections. One of the best varieties for fertilization of pistillate kinds. Season medium.

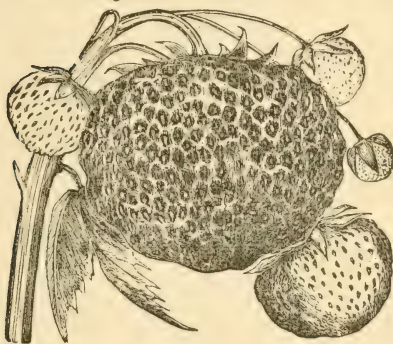


Satin Gloss.—A seedling of Lady Finger; fruit medium to large, of beautiful color and regular form. A good berry for the amateur.

Seneca Chief.—We believe this variety entirely worthless. Sometimes confounded with Seneca Queen.

Sucker State.—Resembles the Wilson in character of the fruit. Plant is vigorous and a good grower. Early to medium.

Seneca Queen.—One of the most productive and profitable varieties grown; though now almost entirely discarded, which fact is to be regretted, for it is certainly equalled by few varieties. The berries are large, round and dark crimson; of good quality. Good for market and home use. We learn that this variety is meeting with great favor in the West and trust that it will be longer-lived in that section than it was in the East.



Seth Boyden.—(Boyden's No. 30.) Very large and of good quality;

once exceedingly popular but now almost entirely superseded by other and better varieties. Originated with the late Seth Boyden of New Jersey. Popular in the South.

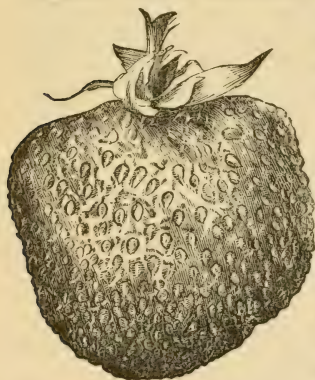
Sunapee.—Originated with Susan P. Fowler of Vineland, N. J., who pronounces it very early, of good size, uniform, bright crimson, very firm, exceedingly vigorous and productive. It is claimed to be so sweet as to need no sugar. From all that can be learned this is a very valuable acquisition.

Shirts.—Rather a peculiar name for a strawberry, and it, like the garment bearing the same name, remained in use but a short time—worn out. It is, however, of good quality and color, and very productive. Valuable to the amateur.

Truitt's Surprise.—Originated by Jas. Truitt of Kansas. Berries a dark, rich red, flesh firm and of the very best quality; plant a strong grower and withstands heat well. Not yet fully tested.

Vineland.—(Lord's Seedling.) From tests of this variety the past season, we are led to believe that it will meet with great favor as its good qualities become better known. The plant is a strong grower, healthy and prolific. Fruit of good size, attractive color and good quality. Season medium.

Warren.—One of the finest of our early varieties, especially for home use, but requires high culture. Fruit uniformly globular, dark crimson, rich and excellent. Its dark color prevents its becoming popular as a market berry.



sprightly, acid flavor.

Wilson.—(*Albany.*) This grand old variety, which has stood by us for years, must now pass into oblivion before the greater excellencies of newer varieties. It seems to have entirely lost its old-time vigor and productiveness. In some localities, however, it still retains its place among the first, but mainly we believe from what it *has been*, not *is*. Very attractive in color, firm and productive and of peculiar,

POPULAR FOREIGN VARIETIES.

Jucunda.—(*Knor 700.*) Large, conical, crimson or scarlet; excellent flavor; a good grower but tender. Requires, as do all foreign varieties, good culture.

Marguerite.—(*Le Breton.*) Very large, long, conical, pale scarlet, sweet, but rather insipid. With extra cultivation it is quite productive, but the plant is naturally feeble. A very fine show fruit.

Napoleon III.—Fruit large, of a brilliant crimson; flesh firm, juicy; plant vigorous. The Austin has been sent out from several establishments in this country under this name.

Triomphe de Gand.—Very large, irregular, conical, often flattened; it requires heavy soil, and must be manured highly. Rich, musky in flavor, very firm and continues a long time in fruit. Season early to late. Succeeds well in the South.

Victoria.—(*Trollope's.*) Very large, roundish-conical, light pale scarlet; seeds slightly imbedded, and set wide apart; flesh nearly white, juicy, but not rich, often insipid. The productiveness of this variety is extremely variable; in some soils it is very prolific, while in others, apparently as rich, it is unproductive. It is an old English variety, discarded by nearly every cultivator in the country, yet it has been frequently brought out under a new name. Trembly's Union proved to be this variety, and was so declared by several fruit growers when it was first exhibited. The Golden Queen of Rochester, N. Y., is also said to be the Victoria.—“*Fuller.*”

Walter.—A seedling of Jucunda, highly recommended but not yet fully tested.

VARIETIES OF THE “HAUTBOIS CLASS.”

The Hautbois varieties are cultivated but little in this country, as the peculiar musk flavor is not pleasing.

Common Hautbois.—(*Fragaria elatior*, *Diocious Hautbois*, *Musky Hautbois*, &c.) Medium, roundish or ovate, reddish green, strong musky flavor: fruit stems projecting above the leaves. Hence the name Hautboy or Highwood.

Belle Bordelais.—The largest and best of this class.

Hautbois Prolific.—An old and fine variety.

Royal Hautbois.—The most popular variety of this class.

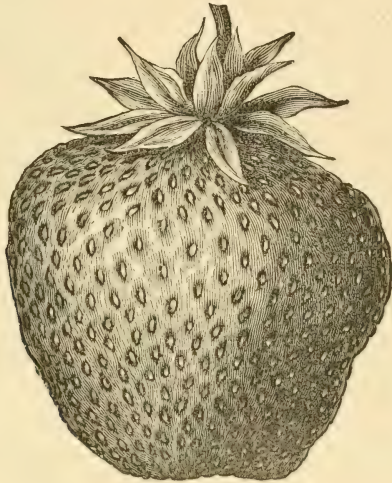
"VARIETIES WORTHY OF MENTION."

The following list includes those varieties which are of local reputation and those which have not yet been fully tested. Varieties which are worthless and those entirely discarded are not named.

British Queen.	Napoleon III.
Col. Ellsworth.	Neal's Tardy.
Crispin.	New Dominion.
Centennial Favorite.	Old John Brown.
Cetyowayo.	Oceanna Chief.
Damask Beauty.	Phenomere.
Endicott Seedling.	Photo.
Fairy Queen.	Polopel.
Grace.	Pearl.
Heffner's No. 1.	Proutty's Seedling.
Heffner's No. 2.	Panic.
Kerr's Prolific.	Philadelphia.
Longworth's Prolific.	President Wilder.
Luxuriant.	Queen of the West.
Martha (<i>Photo.</i>).	Ray's Prolific.
Maud Miller.	Sterling.
Montreil.	Shenandoah.
Michigan.	Star of the West.
Minnetonka.	Trinity.
Magnum Bonum.	Triple Crown.
Moodna.	Woodward No. 1.

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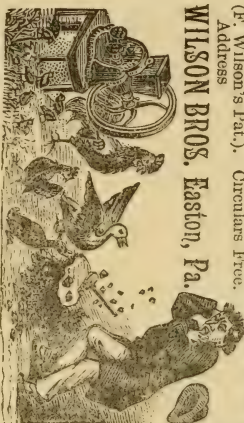
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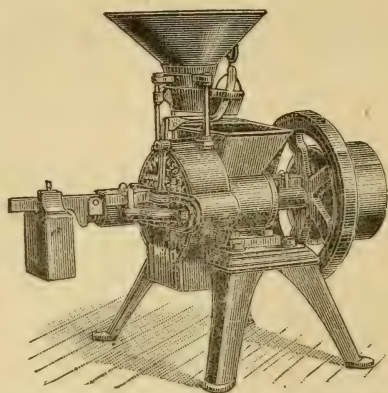
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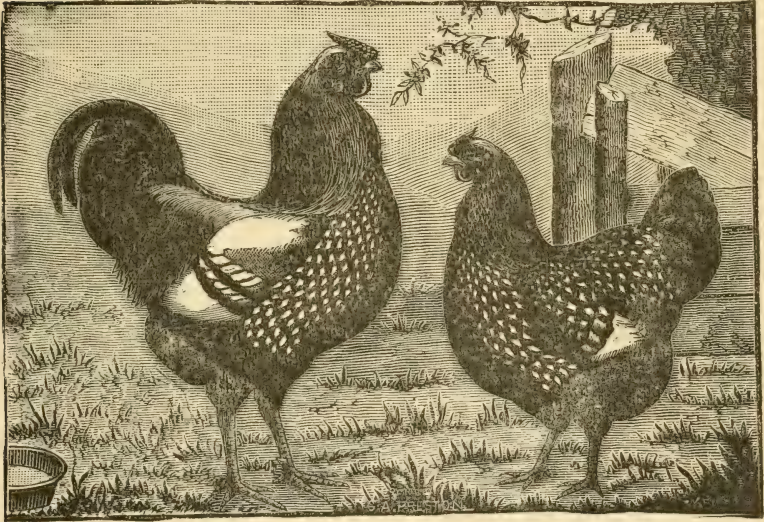
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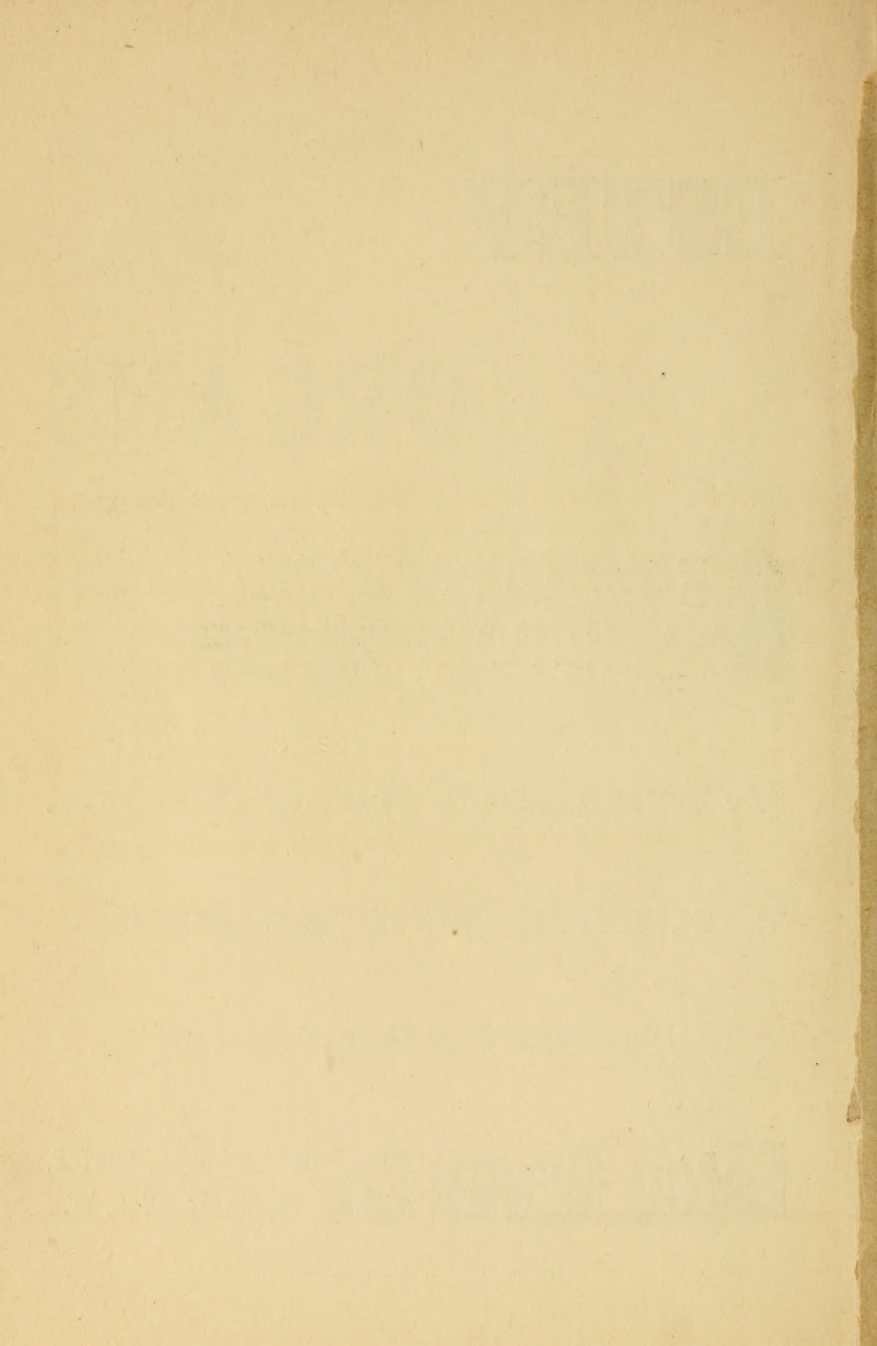
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